HIMCO REMEDIAL ACTION WORK PLAN

Prepared For:
Himco Site Trust

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LIST OF ACRONYMS

2H:1V	2 Horizontal: 1 Vertical
CD	Consent Decree
CDA	Construction Debris Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
Closure Criteria	IDEM Residential and Industrial Default Closure Levels
CQA	Construction Quality Assurance
CQAP	Construction Quality Assurance and Performance Standard Verification Plan
CRA	Conestoga-Rovers & Associates
CRA, 2008	Remedial Design Work Plan
CRA, 2010	Final Design Report
DCB	Dichlorobenzene
100% Design Report	100% Final Design Report
FSP	Field Sampling Plan
ft AMSL	feet Above Mean Sea Level
HASP	Health and Safety Plan
HHRA	Human Health Risk Assessment
IDEM	Indiana Department of Environmental Management
LFG	Landfill Gas
$\mu g/m^3$	micrograms per cubic meter
MHP	Material Handling Plan
mL	Milliliter
NPL	National Priority List
O&M Plan	Operation and Maintenance Plan
OSHA	Occupational Safety and Health Administration
PAHs	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethene
PPM	Parts per Millions
PVT	Passive Ventilation Trench
PSDs	Performing Settling Defendants
PSV	Performance Standard Verification
QAO	Quality Assurance Officer

LIST OF ACRONYMS

QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RA	Remedial Action
RAWP	Remedial Action Work Plan
RC	Remedial Contractor
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RD/RA	Remedial Design/Remedial Action
RD Work Plan	Remedial Design Work Plan
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
ROD-A	Amended Record of Decision
SEC Donohue, 1992	Remedial Investigation and Feasibility Study
SGP	Soil Gas Probe
Site	Himco Site
SOW	Statement of Work
SSI	Supplemental Site Investigation
SSI/SCR	Supplemental Site Investigation/Site Characterization Report
SVOC	Semi Volatile Organic Compound
TAL	Target analyte list
TCE	Trichloroethene
TMB	Trimethylbenzene
TSDF	Treatment Storage and Disposal Facility
USACE	United States Army Corps of Engineers
USACE, 1996	Final Design Analysis Report
USEPA	United States Environmental Protection Agency
USEPA 2002	USEPA's Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils
USCS	Unified Soil Classification System
VAS	Vertical Aquifer Sampling
VOC	Volatile Organic Compound

1.0 INTRODUCTION

The Performing Settling Defendants (PSDs), collectively known as the Himco Site Trust, retained Conestoga-Rovers & Associates (CRA) to prepare this Remedial Action Work Plan (RAWP) for the Himco Site (Site) in Elkhart, Indiana. CRA prepared the RAWP in accordance with Section VI, Paragraph 12 of the 2007 Consent Decree (CD) for Remedial Design and Remedial Action (RD/RA).

1.1 GENERAL

The Site is a closed landfill located at the intersection of County Road 10 and John Weaver Parkway (former Nappanee Street Extension) in Elkhart County, Indiana. The Site covers approximately 100 acres in the Northeast ¼ of Section 36, Township 38 North, Range 4 East in Cleveland Township, of which approximately 65 acres is the landfill proper. The landfill accepted waste including household refuse, construction rubble, medical waste, and calcium sulfate between 1960 and 1976. The landfill was closed and covered with a 1-foot layer of sand overlying a layer of calcium sulfate in 1976.

The Site location is shown on Figure 1.1. A Site plan, including property boundaries is provided on Figure 1.2.

According to the Remedial Investigation and Feasibility Study (RI/FS) (SEC Donohue, 1992), the Site consists of two major areas: the calcium sulfate-covered landfill and the 4-acre construction debris area (CDA). The CDA was subdivided into seven residential properties and one commercial property parcel. The commercial property is not currently occupied or being used for any purpose. The CDA and its boundaries were defined primarily from 13 test trenches excavated in 1991 during the second phase of field studies for the Remedial Investigation (RI).

From 1974 to 1992, a number of environmental investigations were completed at the Site including a RI/FS in 1989-1992 by SEC Donohue. Before the implementation of the RI/FS, the United States Environmental Protection Agency (USEPA) added the Site to the National Priorities List (NPL) on February 21, 1990. Upon completion of the RI/FS, the USEPA issued a Record of Decision (ROD), executed on September 30, 1993, which identified the selected RA for the Site. Subsequent to the ROD, additional environmental investigations were completed. An Amended ROD (ROD-A) was issued on September 15, 2004. The ROD-A provided for the remedial actions (RA) for the landfill cover, CDA soil removal, groundwater, and air components of the RD/RA for

the Site. The RD/RA is being conducted pursuant to the CD, which became effective on November 27, 2007. The lead Agency for the Site is USEPA Region 5. Indiana Department of Environmental Management (IDEM) is the support Agency.

Pre-design investigations commenced at the Site in 2008. Groundwater monitoring is ongoing. In accordance with the CD, remedial design was completed in three stages (60%, 90%, and 100%). USEPA issued approval of the Pre-Design Investigation/100% Final Design Report (CRA, 2010) (hereafter referred to as the "Final Design Report") and notice to proceed with the RAWP on July 21, 2010.

1.2 PURPOSE OF RAWP

As stated in Section VI, Paragraph 12 of the CD, the RAWP shall

> *…provide for construction and implementation of the remedy set forth in the Amended ROD and achievement of the Performance Standards in accordance with this Consent Decree, the Amended ROD, and the SOW, and the design plans and specifications developed in accordance with the Remedial Design Work Plan and approved by EPA, in consultation with the State.*

Paragraph 12 of the CD states that the RAWP shall include the Health and Safety Plan (HASP) for the RA. Section III.3 of the SOW requires that the RAWP include the Quality Assurance Project Plan (QAPP), Field Sampling Plan (FSP), HASP, Contingency Plan, and Construction Quality Assurance Plan (CQAP). However, in accordance with Section III.2.3 and Section III.2.3 of the SOW, the QAPP, FSP, HASP, Contingency Plan, and CQAP for the RA were included in the 90% and 100% RD submittals, and were approved by USEPA on July 21, 2010. For completeness, this RAWP explains where these documents can be found in the approved submittals.

1.3 REPORT ORGANIZATION

For ease of review, the sections of this RAWP are consistent with Section III.3.1.1 through Section III.3.1.9 of the Statement of Work (SOW), and presented, for the most part, in the order requested by the SOW. As such, this RAWP is organized as follows:

- Section 2.0 provides background information on the Site

- Section 3.0 describes the overall strategy for the RA, including the problem statement and a description of the remedial design and construction activities, as required by Section III.3.1 of the SOW
- Section 4.0 describes the operation and maintenance requirements laid out in the Draft Operation and Maintenance Plan (O&M Plan)
- Section 5.0 summarizes the performance monitoring requirements for the RA
- Section 6.0 describes the overall management strategy for the project
- Section 7.0 describes the activities to be completed prior to implementing the RA
- Section 8.0 describes the project team and qualifications of key personnel
- Section 9.0 describes the technical approach for the remediation and construction activities in accordance with the Final Design
- Section 10.0 presents the proposed schedule for the RA activities

2.0 SITE BACKGROUND AND SETTING

2.1 SITE DESCRIPTION

The Site is a closed landfill located at the intersection of County Road 10 and John Weaver Parkway in Cleveland Township, Elkhart County, Indiana. According to the ROD-A, the Site accepted waste including household refuse, construction rubble, medical waste, and calcium sulfate between 1960 and 1976. The topography of the landfill is varied with two high points located in the northwest and east sides, respectively at an approximate elevation of 772 feet above mean sea level (ft AMSL). The perimeter of the landfill has an approximate elevation of 761 ft AMSL. According to the RI/FS (SEC Donohue, 1992), an estimated two thirds of the waste in the landfill is calcium sulfate. The landfill was closed and covered with a 1-foot layer of sand overlying a layer of calcium sulfate in 1976. The CDA bordering the southern perimeter of the landfill consists of construction rubble mixed with non-native soil. Numerous small piles of rubble concrete, asphalt, and metal debris are scattered throughout the area. The calcium sulfate layer found at the landfill is not present in the CDA.

According to Supplemental Site Investigations/Site Characterization Report (SSI/SCR) (USEPA, 2002) the landfill and surrounding areas were initially marsh and grassland. No liner, leachate collection, or gas recovery system was constructed as part of the landfill. Refuse was placed at ground surface across the Site, with exception of trench filling in the eastern area of the Site. In this area, a total of five trenches 10 to 15 feet deep, the width of a truck and 30 feet long, were excavated. Paper refuse was reportedly dumped in the trenches and burned. The exact locations of these trenches within the landfill are unknown. About two thirds of the waste in the landfill is calcium sulfate. Other wastes accepted at the landfill included demolition/construction debris, household refuse, and industrial and hospital wastes. The landfill had no specifically defined borrow source, but obtained sandy soil for daily cover from an abandoned gravel pit to the north, ponded areas to the west, and essentially anywhere around the perimeter of the Site where sand was available.

The abandoned gravel pit, commonly referred to as the Quarry Pond, is filled with water. The two other smaller ponds, on the west side of the Site are commonly referred to as the L Pond and the Little Pond. The typical surface water elevation ranged from 754.5 to 755.3 ft AMSL in November 2008.

The waste on Site is in contact with the water table. The RI/FS states that residents near the Site reported complaints of color, taste, and odor problems in shallow water supply wells as early as 1974. Deeper potable water supply wells were installed for some

residents in the 1970s. The USEPA Emergency and Response Branch sampled these wells in late April 1990. High levels of sodium in these deep wells eventually led to the requirement to supply municipal water to these residents in 1990.

2.2 SITE HISTORIC ANALYSIS

A Remedial Investigation was completed in 1991-1992 (SEC Donohue, 1992) to characterize the contamination in soil samples collected from the landfill cover and areas next to the cover. Soil data was also collected from the CDA during the 1998 SSI to characterize the nature of soil contamination.

The first attempt at defining the limit of waste occurred in 1992 using a combination of geophysical surveys, test pit and soil boring observations, and examination of aerial photos (SEC Donohue, 1992). The limit of waste of the landfill was further defined in 1996 using information contained in the Final Design Analysis Report (USACE, 1996).

The USACE conducted two supplemental soil gas investigations that were performed between 1998 and 1999. The 1998 soil gas investigation concentrated primarily on the area south of the landfill to County Road 10, with limited investigations to the east of the landfill to John Weaver Parkway.

In order to further delineate and understand the extent of conditions on-Site, CRA completed a pre-design investigation in accordance with the RD Work Plan dated October 2008. The pre-design investigation was designed to delineate the limits of the landfill and characterize on-Site cover soil, where present, for thickness, nutrients, vegetation, and grain size. The CDA, Landfill Gas (LFG)/soil gas, and groundwater were also investigated to supplement existing information and aid in the development of an appropriate remedy. The remedy will address the CDA, the main landfill, and a means of mitigating the LFG/soil gas present at the Site.

Specifically, the pre-design investigation consisted of advancing 246 landfill cover soil borings, excavating 17 test trenches and five test pits, completing vertical aquifer sampling (VAS) at eight locations, installing 29 soil gas probes, collecting 74 soil samples (including quality assurance/quality control (QA/QC) samples), collecting 62 groundwater samples from monitoring wells, collecting 121 samples from VAS boreholes, and collecting 61 soil gas samples (including QA/QC samples).

The landfill limit delineation determined that the actual limit of waste in the west and northeast sides of the landfill varied significantly from the 1996 landfill limit.

The 2009 landfill limit of waste line, as defined by CRA, was produced using historic data, the results of the test trenches, and other data collected during the pre-design investigation.

The soil cover investigation determined the following:

- The thickness of soil cover at the investigated soil boring locations varied from 0 to 2 feet, the average thickness of cover at the boring locations was approximately 0.8 feet, and approximately one third of the boring locations at the Site had 0 to 0.4 feet of existing soil cover
- The Unified Soil Classification System (USCS) soil classifications for samples collected from the landfill soil cover were a poorly graded sand, gravelly sand, or silty sand
- The results of the analysis were not conclusive as to the ability of the landfill soil cover to grow vegetation based on criteria provided from A & L Great Lakes Laboratories, Inc., and the amount of coverable cover soil was too small to make it cost effective for reuse
- Of the 21 sample locations that had Volatile Organic Compound (VOC) detections, none of the sample concentrations were greater than closure criteria

The December 2008 soil samples collected within the CDA contained several Polynuclear Aromatic Hydrocarbons (PAHs) in both surface and subsurface soil samples, and two Semi-Volatile Organic Compounds (SVOCs) (bis(2-Ethylhexyl)phthalate and dibenzofuran). Eighteen of the 23 Target Analyte List (TAL) metals were detected at least once. Arsenic was detected at concentrations above the closure criteria in soil samples from the CDA. Lead was detected at concentrations below the closure criteria in soil samples collected from the CDA. The December 2008 soil samples illustrated that criteria exceedances were detected in samples from two locations that are adjacent to the landfill and on residential properties. Soil samples collected at one location in the southern portion of the landfill also contained parameter concentrations at concentrations exceeding the closure criteria.

The LFG/soil gas investigation determined that concentrations of seven VOCs [1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, 1,4-DCB, benzene, PCE, TCE and vinyl chloride] exceeded the IDEM Indoor Air Criteria in LFG/soil gas samples collected at two locations on the southeast corner of the landfill.

A detailed summary of analytical data collected historically at the Site is provided in the Remedial Design Work Plan (CRA, 2008) and in the Final Design Report.

2.3 SITE SETTING

The Site is bordered to the north by the Quarry Pond and agricultural land; to the east by John Weaver Parkway and beyond by residential properties; to the south by residential properties and County Road 10; and to the west by undeveloped land and agricultural properties.

The Site is currently fenced. A locked access gate is present at the southeast corner of the Site and another located on John Weaver Parkway. A man gate is located on the west side of the Site.

2.4 GEOLOGY

Regional and Site geology are described in detail in the Final Design Report approved by USEPA on July 21, 2010. Since the RA does not include a groundwater remedy, and municipal water supply has already been provided to residents as required by the SOW, a detailed review of geology has not been reproduced in this RAWP.

3.0 OVERALL STRATEGY

3.1 PROBLEM

The landfill accepted waste including household refuse, construction rubble, medical waste, and calcium sulfate between 1960 and 1976. The landfill was closed and covered with a 1-foot layer of sand overlying a layer of calcium sulfate in 1976.

According to the Remedial Investigation/Feasibility Study (RI/FS) (SEC Donohue, 1992), the Site consists of two major areas: the calcium sulfate-covered landfill and the 4-acre CDA. The CDA includes seven residential properties and one commercial property parcel. The commercial property is not currently occupied or being used for any purpose. The CDA and its boundaries were defined primarily from 13 test trenches excavated in 1991 during the second phase of field studies for the RI.

The results of the human health risk assessment (HHRA) indicate a potential for risk to age-adjusted residents, child residents, and construction workers if exposed to the soil within the CDA or groundwater migrating from the site through inhalation, ingestion and dermal contact pathways. Primarily, the exposure compounds include metals such as antimony, arsenic, copper, manganese, and VOCs such as benzene and 1,2-dichloropropane. As a result of the potential risk, areas of exposed waste will be covered and a landfill gas collection system installed to collect gases migrating from the landfill. The landfill cap will minimize and eliminate the potential threat to users and trespassers on site while the landfill gas collection system will collect and minimize receptor exposure to gases departing from the site.

3.2 PROPOSED REMEDY

3.2.1 DESIGN ACTIVITIES

CRA completed a pre-design investigation in accordance with the RD Work Plan dated October 2008. The pre-design investigation was designed to delineate the limits of the landfill and characterize on-Site cover soil, if present (thickness, nutrients, vegetation, and grain size). Additionally the CDA, LFG/soil gas, and groundwater were investigated to supplement existing information and aid in the development of an appropriate remedy.

The design activities included:

i) Landfill/landfill cover investigation
ii) Boundary and topographic survey
iii) Cover evaluation
iv) Wetland survey
v) Waste delineation
vi) Landfill gas/soil gas sampling
vii) Soil cover design
viii) Stormwater management
ix) Maintenance and monitoring program

3.2.2 CONSTRUCTION ACTIVITIES

The remedy will address the CDA, the main landfill and a means of mitigating the LFG/soil gas present at the Site. The components of the proposed remedy, as outlined in the Final Design Report, are as follows:

i) Relocation of waste
ii) Backfilling of residential area (CDA)
iii) Consolidation of waste and shaping of landfill
iv) Construction of landfill cover
v) Construction of landfill gas passive ventilation trench (PVT)
vi) Installation of soil gas probes
vii) Construction of site access road
viii) Annual review

Before any regrading is performed, the landfill will be cleared and grubbed. Following the removal of the necessary medium to large vegetation, the waste will be pulled back from the north, west, east, and southern extents of the landfill. All waste will be relocated into low-lying areas within the landfill. The landfill will be recontoured and then the final soil cover will be placed to allow water to flow off of the landfill. The PVT will be installed as part of the overall RA activities for the Site. The PVT will be integrated as part of the final cover system. The construction aspects of the RA are anticipated to be completed from between December 1, 2010 and December 15, 2011.

3.3 PLANS AND SUBMITTALS PREVIOUSLY APPROVED BY USEPA

Section III.3.2 through Section III.3.6 of the SOW describe submittals as part of the RAWP that have already been submitted to USEPA in accordance with other sections of the SOW. These submittals, their locations in submitted documents, and approval dates, where applicable, are described below.

The Remedial Design QAPP was approved by USEPA in February 2009. At USEPA's request, the QAPP for the RA was developed as an addendum to the RD QAPP. The QAPP Addendum was submitted to USEPA on August 6, 2010, and was approved by the USEPA on October 8, 2010. Should further changes to the QAPP be required, CRA will outline those changes in subsequent QAPP addenda for review and approval by USEPA.

The Field Sampling Plan was submitted to USEPA as Appendix S of Final Design Report. This submittal was approved by USEPA on July 21, 2010.

The HASP was submitted to USEPA as Appendix R of the Final Design Report. This submittal was approved by USEPA on July 21, 2010.

The Contingency Plan was submitted to USEPA as part of the HASP in Appendix R of the Final Design Report. This submittal was approved by USEPA on July 21, 2010.

The CQAP was submitted to USEPA as Appendix Q of the Final Design Report. This submittal was approved by USEPA on July 21, 2010.

4.0 OPERATION AND MAINTENANCE (O&M)

The Draft O&M Plan was prepared in accordance with Section III, Task 5 of the SOW and is provided in Appendix T of the Final Design Report. The Draft O&M Plan describes the maintenance of the landfill cover system, surface water management system, PVT system, and soil gas probes, and describes the groundwater monitoring program.

As required by the SOW, the final O&M Plan will be submitted to USEPA no later than during the pre-final inspection for the RA.

5.0 PERFORMANCE MONITORING

The performance standards verification process includes inspections and/or testing during and following the RA. Components of the Site remedy must be constructed in accordance with the design to perform as intended over the long term. Conformance to the approved design shall be verified during construction. The Performance Standard Verification (PSV) plan was included in the CQAP provided in Appendix Q of the Final Design Report. The CQAP summarized all testing, inspections, and documentation that will be used to verify that the RA was constructed in accordance with the approved design.

The overall performance of the design shall be verified by post-construction inspections and monitoring. The frequency of inspections and monitoring is detailed in the draft O&M Plan provided in Appendix T of the Final Design Report.

6.0 OVERALL MANAGEMENT STRATEGY

This section describes the overall management strategy for the project, and the proposed approach to resolve problems on Site. The project organizational chart is provided on Figure 8.1 and described further in Section 8.0, below.

In general, when on Site, USEPA and IDEM are requested to communicate any issues directly to the on-Site Resident Engineer. USEPA and IDEM may also communicate any issues directly to the PSDs' Project Manager or Alternate Project Manager, particularly during routine project meetings. The Resident Engineer or PSDs' Project Manager/Alternate Project Manager will communicate directly with the Remedial Contractor (RC) that has been retained by the PSDs. This will ensure that the lines of communication are clear, and there is no miscommunication on technical issues.

For technical issues or clarifications, the RC will communicate first with CRA's Resident Engineer (or Project Manager, as appropriate), and will attempt first to resolve any problems directly with the Resident Engineer, and will then involve the PSDs' Project Manager or Alternate Project Manager as appropriate.

In order to ensure clear communication in the field and speedy resolution of problems, the RC and the Resident Engineer/Construction Quality Assurance (CQA) Engineer will meet weekly on Site. In general, if design issues or problems arise, the RC will attempt to first resolve the issue or question directly with the Resident Engineer/CQA Engineer. A representative for the PSDs may also attend these meetings if the issue cannot be resolved between the RC and the Resident Engineer/CQA Engineer.

Problem Resolution Meetings will be held on Site as necessary, when the immediate nature of a construction issue precludes discussion at the next scheduled Site meeting. At these meetings, the problem will be defined and discussed by all concerned parties. The PSDs Project Manager or Alternate Project Manager will select the solution to problems raised at these meetings, and the parties will agree upon the implementation and schedule for the resolution.

USEPA and IDEM will be invited to monthly progress meetings. USEPA and IDEM may also request Problem Resolution Meetings, if required.

7.0 PRE-REMEDIAL ACTIVITIES

The following is a summary of the major tasks that have been or will be completed prior to commencing the RA.

Pre-Design Investigation

As required by the CD and the SOW, the PSDs completed the required pre-design investigations to delineate the limits of the landfill and characterize on-Site cover soil. Additionally, the PSDs investigated the CDA, landfill gas/soil gas, and groundwater quality to supplement existing information and aid in remedial design. The groundwater investigation is ongoing. The RA will address the CDA, the main landfill, and landfill gas/soil gas present at the Site.

Wetlands Delineation

CRA completed a wetland survey on June 22 and 23, 2009. The survey identified three wetland areas on Site, as documented in Appendix C-2 of the Final Design Report. As part of pre-remedial activities completed subsequent to the wetland survey, CRA has verified through communication with the Indiana Department of Natural Resources that there are no threatened or endangered species within the Site. As indicated on Drawing 5 of the Final Design, the limits of excavation of waste material and soil disturbance are very close to the approximate limits of the wetlands on Site. As part of the Site preparation activities, the limit of the wetland area and the limit of proposed disturbance will be laid out in the field. If possible, the wetland will not be disturbed; otherwise work within this area will be limited to excavation of waste material, if any is present, and subsequent restoration to maintain current or lower ground elevation in the wetland area. If necessary, procedures for restoration will be submitted to USEPA and IDEM for review and comment.

Permits

The Remedial Contractor will be responsible for obtaining the necessary permits to complete the RA. These permits may include:

- Water Use Permit
- Soil Erosion Permit

Utility Clearance

The RC will contact Indiana 811 before commencing site activities.

Site Security

The RC will be responsible for maintaining Site security at all times during the RA construction activities. The RC will inspect, maintain, and repair the fencing, as necessary, to ensure protection of the public and Site security.

Access gates into the Site will be kept closed and locked to prevent uncontrolled and/or unauthorized access to the Site. The access gates will be locked at all times when the Site is unattended.

During active soil handling or until soil materials are removed from the Site, security will be provided including, as required, a security officer. The security officer will:

i) Limit vehicular access to the Site to authorized vehicles and personnel only.

ii) Provide initial screening of all Site personnel and visitors. A list of authorized personnel and the name of their employer will be available at the Site offices.

iii) Maintain a security log in which documentation is provided of all Site personnel, visitors and deliveries, and any security incidents. This log will include the date, name, address, company, time in and time out for each employee and visitor. If unauthorized personnel are observed on the Site and refuse to vacate the premises, appropriate law enforcement officials will be contacted for appropriate legal actions.

iv) Maintain a visitor log at the Site. Visitors will not be allowed to enter without the knowledge of CRA. All visitors will be required to complete health and safety training in accordance with the HASP prior to gaining access to the secured areas.

v) Check that all installations are secure and intact on a daily basis. If warning signs are removed, the situation will be brought to the attention of the Engineer's representative and will be rectified at the earliest possible opportunity.

Soil Erosion and Sedimentation Control

Measures for soil erosion and sedimentation control have been incorporated into the RD and are therefore considered part of remedial activities at the Site.

8.0 PROJECT TEAM AND QUALIFICATIONS

The organizational structure for the RA is shown on Figure 8.1. The responsibilities of each member of the project team are described in detail in Section 2.0 of the CQAP (Appendix Q of the Final Design Report).

The PSDs previously identified Mr. Gary Toczylowski of Bayer HealthCare as their Project Manager. Mr. Tom Lenz of Bayer Healthcare will act as Alternate Project Manager for the PSDs.

The PSDs retained CRA to act as the Engineering Consultant and CQA Consultant for the RD/RA. Ms. Denise Quigley will act as overall Project Manager for CRA. Ms. Quigley has over 15 years of related environmental engineering and project management experience. Mr. Douglas Gatrell, P.E. will act as CQA Project Manager. Mr. Gatrell is a Professional Engineer in the State of Indiana, and has over 17 years of related civil and environmental engineering and construction project experience. As noted in the CQAP, a CQA Official from CRA shall observe and document the RA construction activities on Site. The CQA Official will act as Resident Engineer and will oversee the Remedial Contractor's activities.

After a competitive bidding process, the PSDs retained Conestoga-Rovers & Associates, Inc.'s construction division, known as CRA Services to act as RC to implement the RA. The RC's key personnel are described below:

Donald C. Osterhout, Project Manager – Mr. Osterhout has worked in the remediation and construction industries for over 15 years as a Project Manager. Experience includes cost estimating, equipment and labor management, material and subcontractor procurement and management. As Project Manager he has lead projects involving large-scale earthmoving, landfill capping and closure, PCB TSCA remediation projects, sludge and sediment stabilization, waterways and creek restoration, wetlands creation, mine surface water flow and reclamation, demolition and decommissioning, and in-situ soil remediation throughout the United States.

Steve Corning, Construction Superintendent - Mr. Corning has over 20 years of experience as construction superintendent. Mr. Corning's work experience includes large-scale excavation and disposal projects; petroleum pipeline maintenance; UST decontamination, removal, and dismantling; water, sanitary, and storm line excavation and installation; and work on numerous environmental related projects.

Timothy N. Reed, Safety & Health Officer – Mr. Reed has over 10 years of experience in construction supervision, management, Safety & Health, and remedial system operations. Mr. Reed is currently the acting Safety & Health Officer at a project consisting of excavation and disposal for polychlorinated biphenyl (PCB) and heavy metals removal, and has managed and conducted health and safety operations on numerous project sites. His experience includes sites managed under CERCLA, RCRA, and numerous state agency regulations. Additional experience includes excavation (PCBs, metals, VOCs), water, sanitary, storm line construction, and construction and operation of in-situ groundwater and soil remediation systems.

9.0 TECHNICAL APPROACH AND PROCEDURES, CONTRACTOR DELIVERABLES AND INSPECTIONS

9.1 TECHNICAL APPROACH AND PROCEDURES

The sequence of construction activities is as follows: site preparation, waste excavation and consolidation, soil cover system construction, installation of stormwater management features, installation of PVT and soil gas probes, and construction of ancillary features such as access roads. The following sections present the technical approach and procedures of each construction component.

9.1.1 SITE PREPARATIONS

Site preparation will include installation of erosion control measures, clearing, preparation of stockpiling and staging areas, and abandonment of soil gas probes. The landfill area will also be cleared and grubbed in preparation for the waste excavation activities. Trees that are outside of the waste excavation limit or that can be saved will be clearly marked and maintained throughout the site activities.

Monitoring well extensions will be completed as Site regrading progresses.

9.1.2 WASTE EXCAVATION AND CONSOLIDATION

Waste excavation activities will consolidate the current waste footprint of 65 acres to 50 acres upon remedy completion. The waste within the CDA and along the perimeter of the landfill will be excavated and consolidated within the limits of the landfill cover. Excavation activities will proceed from the northwest corner of the Site in an easterly direction using track-mounted excavators, off-road trucks, and bulldozers. The side slopes for the waste excavation areas will be 2 Horizontal: 1 Vertical (2H:1V) to minimize disturbance to the surrounding landscape.

Surface rubble/debris will be relocated throughout the landfill prior to placing the cover. Items such as tires and appliances that cannot be placed in the landfill will be removed from the landfill surface and disposed off Site at a municipal landfill or recycling facility.

Leachate will likely be encountered during the waste excavation activities. A leachate infiltration gallery will be constructed to recirculate the leachate back into the landfill. A

temporary berm will be constructed adjacent to the infiltration gallery for additional containment and erosion control. The quantity of leachate will be recorded, and a leachate sample will be collected for analysis in accordance with the Final Design. CRA will submit the results of the leachate analysis and the proposed action to USEPA and IDEM within 2 weeks of completing the data validation and review.

As the waste is regraded, side slopes will be graded as shown on the Final Design drawings. Final contours may be adjusted as appropriate during remedial construction to maintain the minimum required slopes while minimizing the need for imported fill. Regraded waste, soil, and imported fill material will be compacted in accordance with the construction specifications.

9.1.3 SOIL COVER SYSTEM CONSTRUCTION

As waste excavation, consolidation, and regrading progresses, the Contractor will construct the soil cover system. The soil cover includes the following component layers:

(a) A rooting zone layer that is a minimum of 12 inches thick

(b) A vegetative topsoil layer that is a minimum of 6 inches thick

The rooting zone layer may be placed, using a bulldozer or equivalent machinery, in a single 12-inch lift. Proof-rolling will be done using a smooth-drum roller and compaction shall be minimal.

The vegetative topsoil will be placed using a bulldozer or equivalent machinery. The topsoil will be placed in a single lift and graded into place.

The Contractor will seed the cover as the project progresses. Weather conditions, such as forecasted periods of hot, dry weather or heavy rainfall, will affect the timing of seeding.

9.1.4 STORMWATER MANAGEMENT FEATURES

The Contractor will control surface water during regrading activities by promoting surface water sheet flow towards swales on the landfill cover and existing ponds along the landfill perimeter. Localized erosion and sedimentation will be controlled through silt fence, hay bales, and other measures.

The pre-grading contour design has been developed to promote sheet flow on the landfill cover surfaces. The contours of the waste relocation layer will be constructed to maintain and promote drainage until final cover construction commences. The final cover drainage plan will maintain the same configuration as the waste relocation layer.

9.1.5 PASSIVE VENTILATION TRENCH (PVT)

The PVT will be installed along the southern and southeastern boundaries of the Site upon completion of the final soil cover system. The Contractor will use a trenchbox to maintain the excavation sidewalls during PVT construction. The alignment of the PVT will be constructed 40 to 50 feet from the edge of the final cover, which then determines the offset distances for the perimeter road. The PVT is located along the exterior edge of the perimeter access road allowing adequate distance for the installation of the soil gas probes.

9.1.6 SOIL GAS PROBES

Permanent soil gas probes, SGP-100 through SGP-114, will be installed along the southern and southeastern boundaries upon completion of the PVT construction. A licensed driller will install the soil gas probes in accordance with the Final Design requirements.

9.1.7 ANCILLARY FEATURES

The Contractor will install the gravel access road and stormwater controls at the end of the remedial construction period. The road will extend from the landfill entrance along part of the landfill and will be approximately 15 feet wide.

9.2 CONTRACTOR DELIVERABLES

In accordance with the project specifications, the Contractor will submit to CRA for review and approval the following plans:

- Site-specific Health and Safety Plan
- Contingency and Emergency Response Plan

- Off-Site Transportation and Disposal Proposal and Plan
- Material Handling Plan (MHP)
- Seeding and Erosion Control Plan

The following sections describe these key submittals.

9.2.1 SITE-SPECIFIC HEALTH AND SAFETY PLAN (HASP)

The Contractor is required to prepare a Site-specific HASP to ensure that all construction activities are performed safely and in compliance with Occupational Safety and Health Administration (OSHA) requirements, 29 CFR 1910.120 and 29 CFR 1926.65. The HASP will provide specific guidelines and establish procedures for the protection of personnel performing Site activities. The Contractor will prepare the HASP prior to mobilization to Site.

The Contractor shall also produce an organizational chart outlining the major positions and persons assigned to each role (i.e., off-Site project manager, superintendent, certified hygienist, health and safety officer, testing labs and subcontractors) and a list of all on-Site personnel. For each on-Site employee, proof of OSHA training, certifications of medical surveillance and proof of respirator fit testing is required.

9.2.2 CONTINGENCY AND EMERGENCY RESPONSE PLAN

Prior to work involving hazardous substances, wastes pollutants, contaminants or solid waste, the Contractor will submit a Contingency and Emergency Response Plan to CRA for review and approval. The work plan must be submitted and approved 14 days before the transportation and disposal of materials off- Site. The objective of the plan is to provide guidance for immediate response to a serious Site occurrence (i.e., explosion, fire, migration of significant quantities of toxic or hazardous materials) that could affect or endanger the public or adjacent public or private properties.

9.2.3 OFF-SITE TRANSPORTATION AND DISPOSAL PROPOSAL AND PLAN

Prior to works involving transportation and disposal of materials from Site, the Contractor is required to submit an Off-Site Transportation and Disposal Proposal to CRA for review and approval. The plan shall include information on the proposed

transporter and Treatment, Storage and Disposal Facility (TSDF), method and schedule of transportation and disposal, contingency plans for spills during transportation, and TSDF-specific requirements for waste profiling.

Upon approval of each TSDF by the Himco Site Trust, the Contractor shall provide CRA with all TSDF-specific requirements, including: packaging requirements for shipments, restrictions on waste streams and causes for rejection of wastestreams, regulatory pre-approvals necessary for wastestream acceptance, restrictions on delivery schedule and type and frequency of additional sampling and analysis requirements.

Before off-Site transportation of materials from Site, the Contractor will obtain documentation from the TSDF that indicates that the facility is in compliance with its federal, state and local permits and that the permits are current and valid for the duration of the off-Site disposal activities from Site.

9.2.4 MATERIAL HANDLING PLAN (MHP)

The Contractor shall submit a MHP for review and approval by CRA prior to excavation and transportation of any waste material. The MHP shall include the following, but is not limited to:

- Procedures for removal, transportation and placement of waste material
- Vehicle requirements and descriptions, driver instructions, decontamination procedures and emergency procedures
- Identification of areas requiring intermediate cover
- Technical approach to the CDA soil removal
- Leachate management during the perimeter excavation activities

As part of the MHP, one leachate sample will be collected from a test pit in the Southeast Excavation Area at a depth of 12 feet below ground surface or to the bottom of waste. The leachate sample will be analyzed for the parameters on the interim groundwater monitoring parameter list. CRA will submit the results of the leachate analysis and proposed action to the USEPA and IDEM within 2 weeks of completing the data validation and review.

9.2.5 SEEDING AND EROSION CONTROL PLAN

The Contractor shall submit a Seeding and Erosion Control Plan to CRA for review and approval at least 14 days before the placement of topsoil. The Seeding and Erosion Control Plan will include the following, but is not limited to:

- Description of seed mixture(s) and fertilizers for the Site landfill cover system and adjacent areas and application rates
- Time of year for planting such mixtures
- Methods of preparing seedbed, seeding, sodding, rolling seeded and sodded vendors and irrigation
- Erosion control methods used until seed is placed and grass is established (i.e., use of or a combination of emulsifiers, tackifiers, mulchers, adhesives, nurse crop seed and erosion control matting and/or blankets)

The Contractor shall submit seed certificates to the Engineer at least 14 days before seeding activities. Certificates shall state the botanical and common name, percentage by weight and percentages of purity, germination and weed seed for each species.

9.3 INSPECTIONS

9.3.1 PRE-CONSTRUCTION INSPECTION

A Pre-construction Inspection will be conducted in accordance with Section III, Task 4 of the SOW. Participants will include the PSDs, CRA, the Contractor, USEPA and IDEM. The Pre-construction Inspection will consist of a Site walk-through. The objective of the pre-construction inspection is to review methods for documentation and reporting requirements, review Site security and safety program, and to identify any appropriate modifications to the CQAP. The meeting minutes will be distributed to all parties.

9.3.2 PRE-FINAL CONSTRUCTION INSPECTION

As required by Section III, Task 4 of the SOW, the PSDs will notify the EPA and IDEM within 30 days after a preliminary determination that construction is complete. The PSDs, CRA, the Contractor, USEPA, and IDEM will attend a Pre-final Construction Inspection. This will include a Site walk-through to identify and note any outstanding

construction items. The objective of the Pre-final Inspection is to determine whether the project is complete and consistent with the RA.

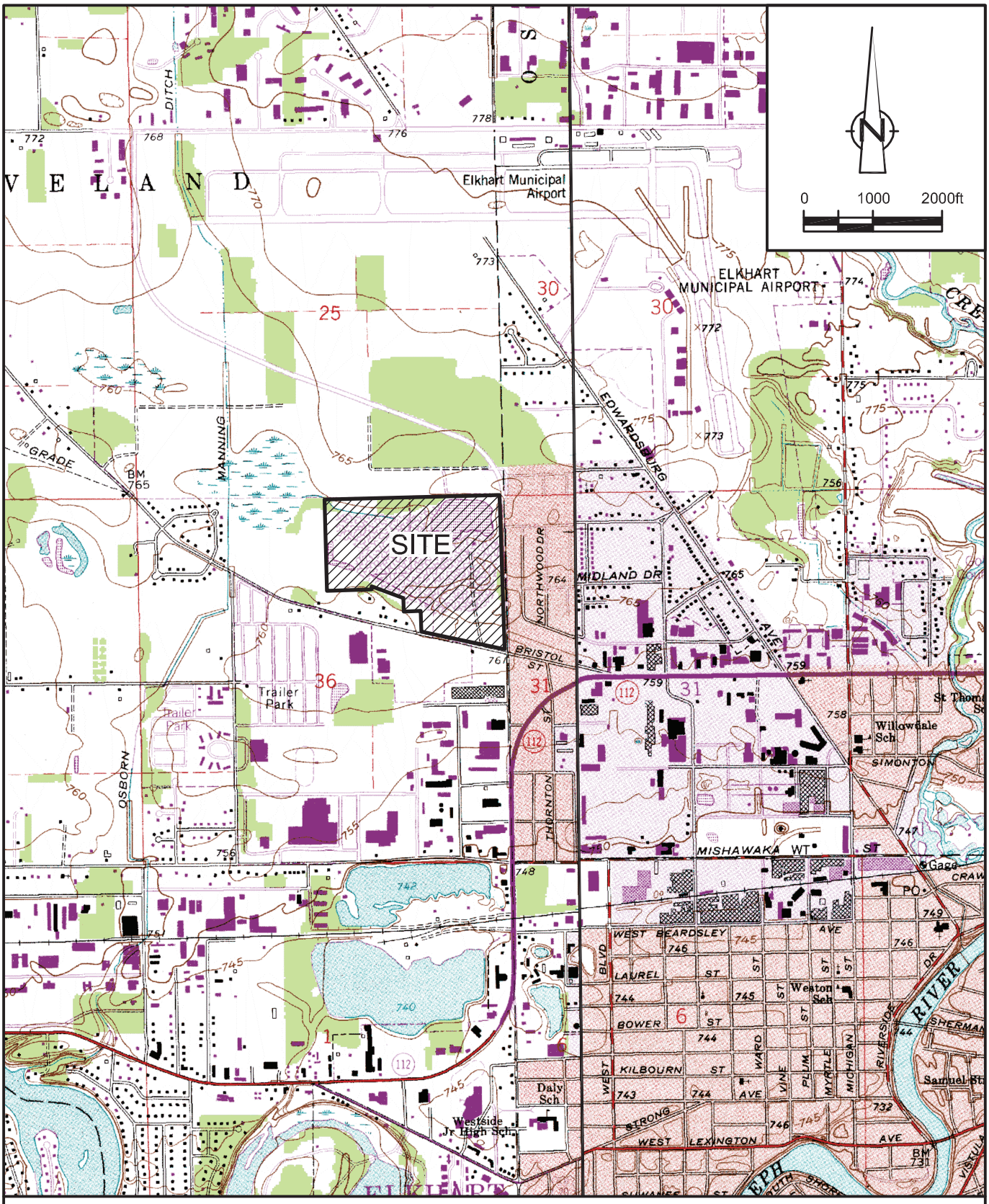
CRA will submit the Pre-final Construction Inspection Report to USEPA within fifteen (15) days following the Pre-final Construction Inspection. This report will outline: the outstanding construction items; actions required to resolve the items; anticipated completion dates for the items; and an anticipated date for the Final Construction Inspection.

9.3.3 FINAL CONSTRUCTION INSPECTION

As required by Section III, Task 4 of the SOW, the PSDs will notify the EPA and IDEM within 30 days after completion of any work in the Pre-final Construction Inspection Report. A Site walk-through will be conducted by the PSDs, CRA, the Contractor, USEPA and IDEM. CRA will submit a Final Construction Inspection Report to USEPA within thirty (30) days of resolving the outstanding pre-final construction items.

10.0 SCHEDULE

Figure 9.1 presents the proposed project schedule for the RA. The schedule assumes that Site preparation activities will commence in late November 2010, with remedial construction commencing in March 2011. A detailed project schedule will be updated and distributed to USEPA and IDEM at each monthly meeting, at a minimum.



SOURCE: USGS QUADRANGLE MAPS;
ELKHART AND OSCEOLA, INDIANA

figure 1

SITE LOCATION MAP
HIMCO SITE
Elkhart, Indiana

39611-00(027)GN-WA002 JUL 28/2010

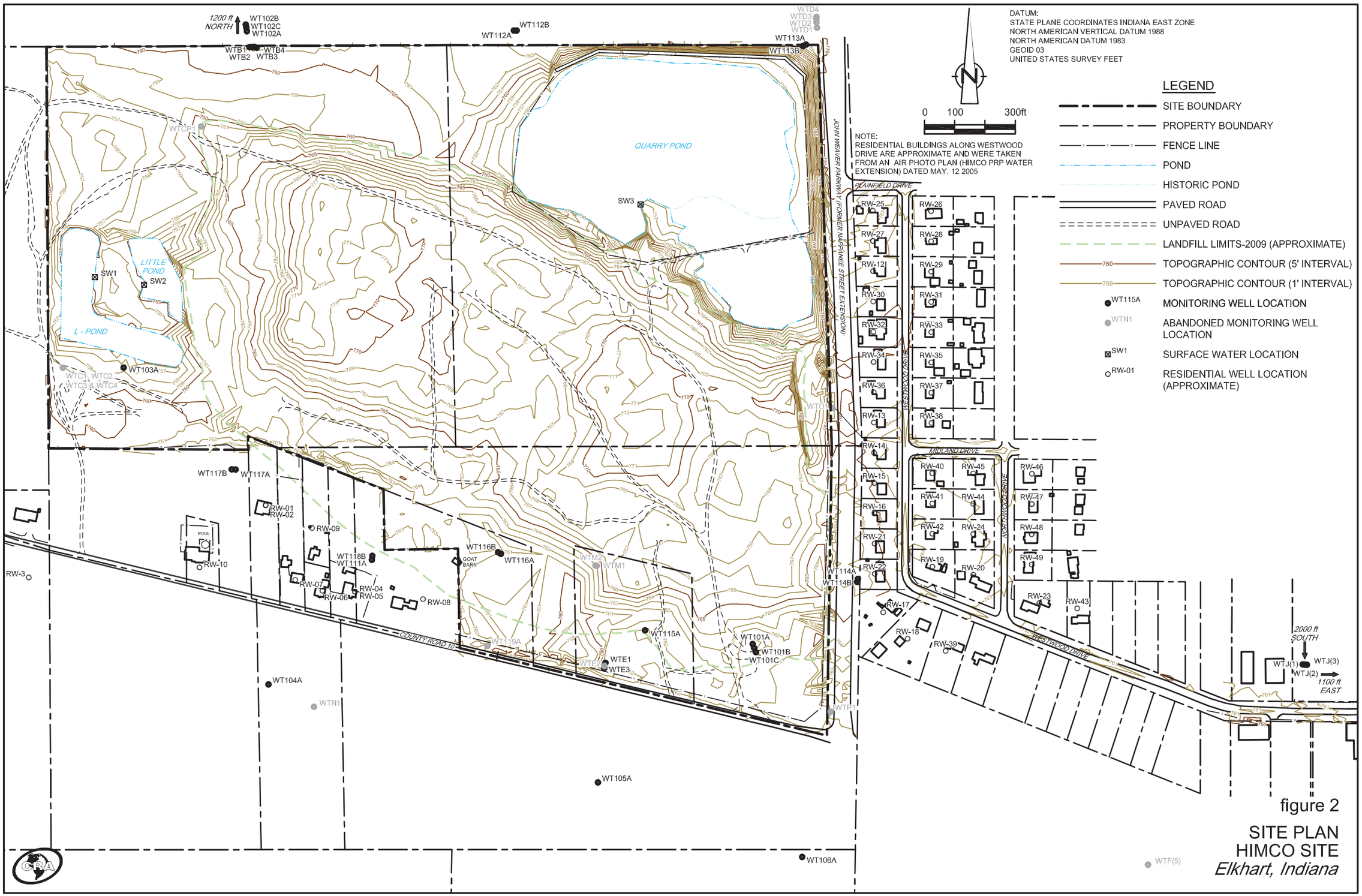


figure 2

SITE PLAN
HIMCO SITE
Elkhart, Indiana

39611-00(027)GN-WA001 JUL 28/2010

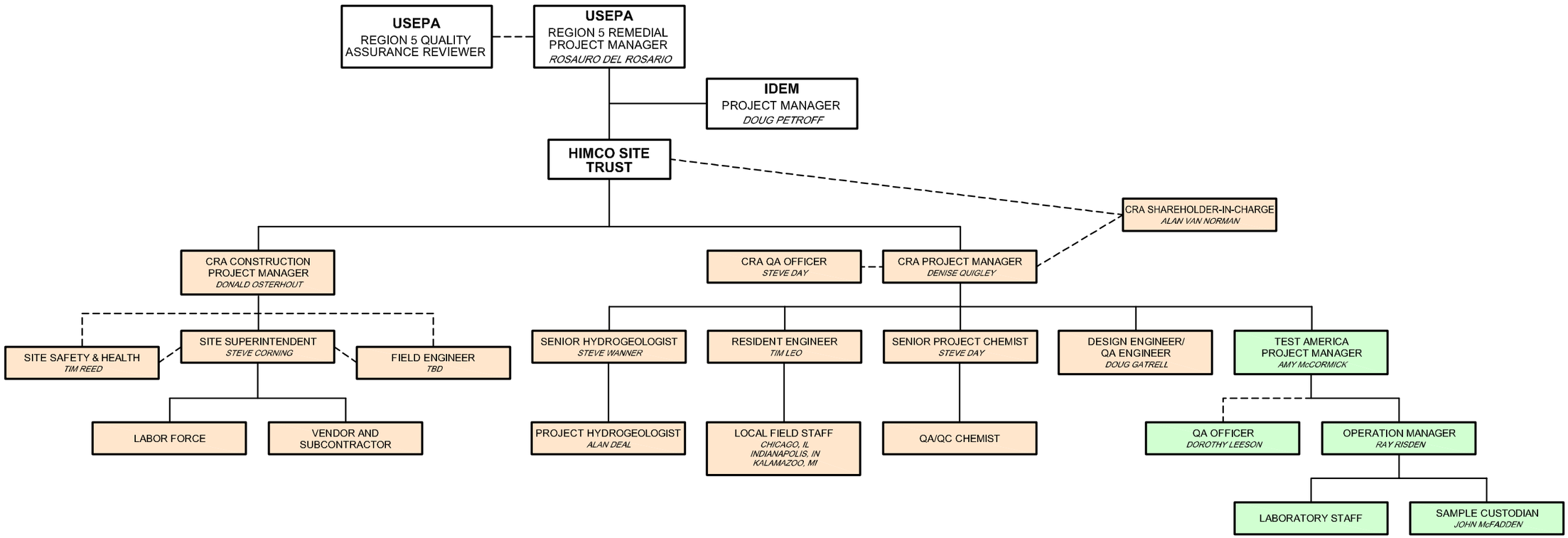
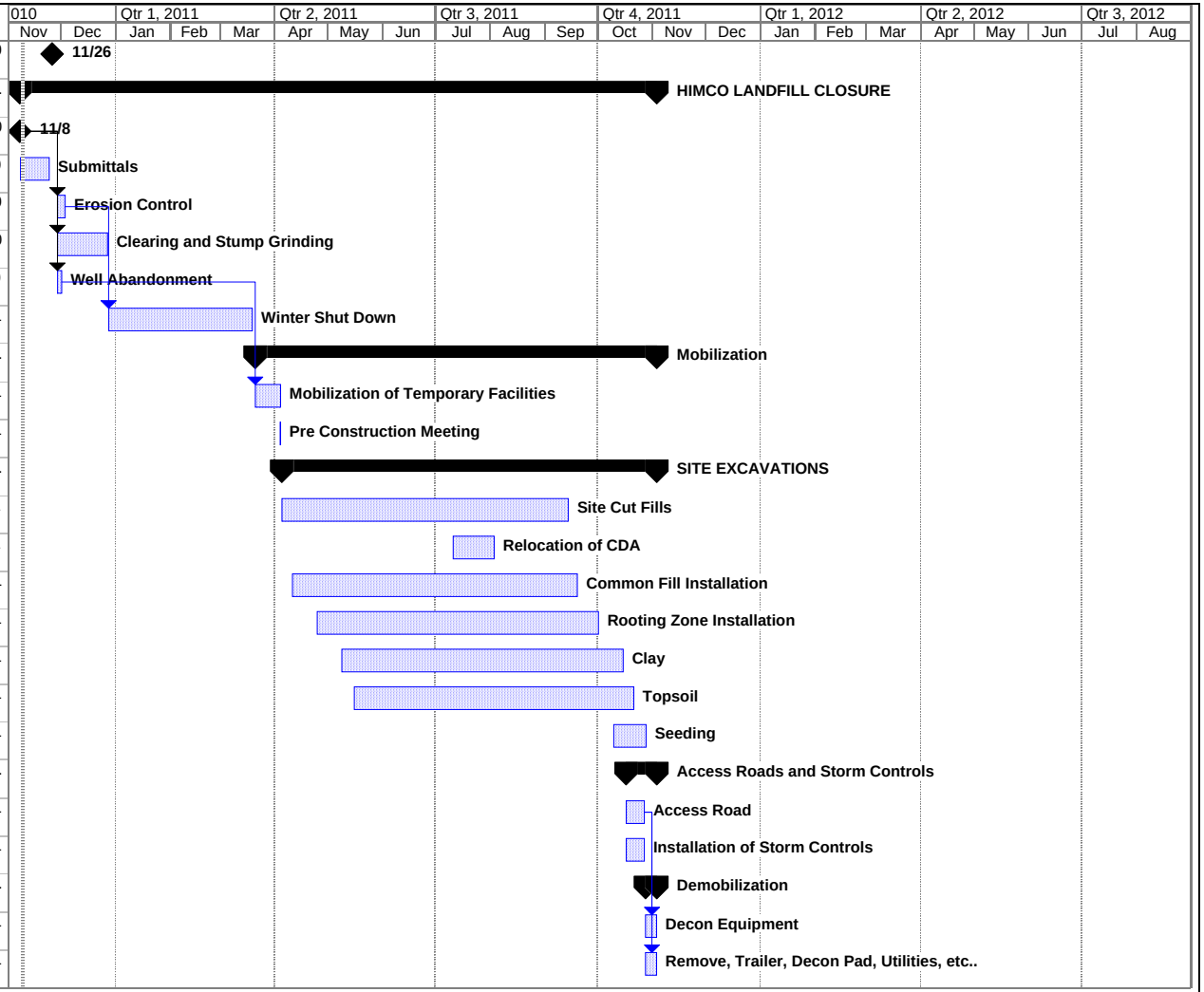


figure 8.1

REMEDIAL ACTION PROJECT ORGANIZATIONAL CHART
Himco Dump Site, Elkhart, Indiana

ID	Task Name	Duration	Start	Finish
1	**EPA Approval of RA WP**	1 day	Fri 11/26/10	Fri 11/26/10
2	**HIMCO LANDFILL CLOSURE**	**297 days**	**Mon 11/8/10**	**Thu 11/3/11**
3	Contract Award	0 days	Mon 11/8/10	Mon 11/8/10
4	Submittals	14 days	Mon 11/8/10	Wed 11/24/10
5	Erosion Control	5 days	Mon 11/29/10	Fri 12/3/10
6	Clearing and Stump Grinding	25 days	Mon 11/29/10	Mon 12/27/10
7	Well Abandonment	3 days	Mon 11/29/10	Wed 12/1/10
8	Winter Shut Down	71 days	Tue 12/28/10	Sat 3/19/11
9	**Mobilization**	**186 days**	**Mon 3/21/11**	**Thu 11/3/11**
10	Mobilization of Temporary Facilities	13 days	Mon 3/21/11	Mon 4/4/11
11	Pre Construction Meeting	1 day	Mon 4/4/11	Mon 4/4/11
12	**SITE EXCAVATIONS**	**173 days**	**Tue 4/5/11**	**Thu 11/3/11**
13	Site Cut Fills	130 days	Tue 4/5/11	Wed 9/14/11
14	Relocation of CDA	20 days	Mon 7/11/11	Wed 8/3/11
15	Common Fill Installation	130 days	Mon 4/11/11	Mon 9/19/11
16	Rooting Zone Installation	130 days	Mon 4/25/11	Sat 10/1/11
17	Clay	130 days	Mon 5/9/11	Sat 10/15/11
18	Topsoil	130 days	Mon 5/16/11	Fri 10/21/11
19	Seeding	17 days	Mon 10/10/11	Fri 10/28/11
20	**Access Roads and Storm Controls**	**16 days**	**Mon 10/17/11**	**Thu 11/3/11**
21	Access Road	10 days	Mon 10/17/11	Thu 10/27/11
22	Installation of Storm Controls	10 days	Mon 10/17/11	Thu 10/27/11
23	**Demobilization**	**6 days**	**Fri 10/28/11**	**Thu 11/3/11**
24	Decon Equipment	6 days	Fri 10/28/11	Thu 11/3/11
25	Remove, Trailer, Decon Pad, Utilities,	6 days	Fri 10/28/11	Thu 11/3/11



Project: 39611-Fig.9.1_revised
Date: Tue 11/9/10

Task	Summary	Rolled Up Progress	Project Summary		
Progress	Rolled Up Task	Split	Group By Summary		
Milestone	Rolled Up Milestone	External Tasks	Deadline		

Figure 9.1
Preliminary Construction Schedule
HIMCO Landfill
Elkhart, Indiana